

IN THE CLAIMS

The following will replace all prior versions, and listings, of the claims in this application.

1-18. (Canceled)

19. (Currently Amended) A process for producing a product gas having heat or fuel value comprising:

feeding a carbonaceous material to a first fluidized bed, ~~wherein~~ the first fluidized bed containing particles suspended in a fluid medium;

indirectly heating the first fluidized bed with a pulse combustion device, at least a portion of the carbonaceous material being gasified to form a first product gas stream;

extracting bed solids containing carbon from the first fluidized bed and feeding the extracted solids to a second fluidized bed separate from the first fluidized bed, the second fluidized bed being at a temperature higher than the temperature of the first fluidized bed, the second fluidized bed having a fluidizing medium comprising steam and an oxygen-containing gas, wherein:

a first portion of the extracted bed solids is oxidized in the second fluidized bed and a second portion of the extracted bed solids is endothermically converted to a gas in the second fluidized bed, to thereby form a second product gas stream; and

the second fluidized bed is heated by oxidizing carbon in the bed, and without an external heat source.

20. (Original) A process as defined in claim 19, wherein the first fluidized bed is maintained at a temperature of less than about 1150 degrees F.

21. (Original) A process as defined in claim 19, wherein the carbonaceous material comprises black liquor.

22. (Previously Presented) A process as defined in claim 19, wherein the first product gas stream is fed to a filtering device for filtering solids entrained in the first product gas stream, the filtered solids being recirculated back to the first fluidized bed.
23. (Original) A process as defined in claim 19, wherein the fluidizing medium fed to the second bed contains oxygen in a stoichiometric amount of less than about 50% based on the amount of carbon in the bed.
24. (Canceled)
25. (Original) A process as defined in claim 19, wherein the portion of the carbonaceous material gasified in the first fluidized bed is endothermically converted to a gas.
26. (Original) A process as defined in claim 19, wherein the fluidized bed particles contained in the first fluidized bed and the second fluidized bed comprise sodium carbonate.
27. (Canceled)
28. (Original) A process as defined in claim 19, wherein the second product gas stream is filtered in order to remove entrained solids.
29. (Previously Presented) A process as defined in claim 28, wherein the entrained solids removed from the second product gas stream are recirculated.
30. (Previously Presented) A process as defined in claim 29, wherein the entrained solids removed from the second product gas stream are introduced into the second fluidized bed.
31. (Original) A process as defined in claim 19, wherein the first product gas stream is combined with the second product gas stream.

32. (Canceled)

33. (Currently Amended) A process for producing a product gas having heat or fuel value comprising:

feeding a carbonaceous material to a fluidized bed, the fluidized bed containing particles suspended in a fluid medium, the fluidized bed including a top portion and a bottom portion, the bottom portion being in communication with a solids collection reservoir located below the bottom portion;

indirectly heating the fluidized bed with a pulse combustion device, a portion of the carbonaceous material fed to the fluidized bed being gasified to form a product gas stream; and

feeding a gaseous medium through the solids collection reservoir and into the bottom portion of the fluidized bed where the gaseous medium gasifies carbon particles, the gaseous medium comprising an oxygen-containing gas, ~~the gaseous medium gasifying carbon particles that have accumulated in the bottom portion of the fluidized bed~~, wherein:

a first portion of the carbon particles contained in the solids collection reservoir is oxidized and a second portion of the carbon particles contained in the solids collection reservoir is endothermically converted to a gas.

34. (Original) A process as defined in claim 33, wherein the fluid medium in the fluidized bed comprises steam.

35. (Original) A process as defined in claim 33, wherein the fluidized bed is heated to a temperature of less than about 1150 degrees F.

36. (Original) A process as defined in claim 33, wherein the fluidized bed is heated to a temperature of less than about 1100 degrees F.

37. (Original) A process as defined in claim 33, wherein the product gas stream is fed to a filtering device for filtering solids entrained in the product gas stream, the filtered solids being recirculated back to the fluidized bed.

38. (Original) A process as defined in claim 33, wherein the gaseous medium fed through the solids collection reservoir contains oxygen in a stoichiometric amount less than about 50%.

39. (Canceled)

40. (Original) A process as defined in claim 33, wherein the solids collection reservoir is maintained at a higher temperature than the fluidized bed.

41. (Original) A process as defined in claim 33, wherein the carbonaceous material comprises a black liquor.

42. (Original) A process as defined in claim 34, wherein at least a portion of the carbonaceous material fed to the fluidized bed is steam reformed to form the product gas stream.

43. (Original) A process as defined in claim 41, wherein the particles suspended in the fluidized bed comprise sodium carbonate.

44. (Canceled)

45. (Original) A process as defined in claim 33, wherein the particles suspended in the fluidized bed comprise sodium carbonate and the fluidizing medium comprises steam, the carbonaceous material being fed to the fluidized bed comprising black liquor, a majority of the black liquor being steam reformed in the fluidized bed, and wherein a portion of the carbon particles that have accumulated in the bottom portion of the fluidized bed are oxidized, while another portion of the carbon particles are steam reformed.

46-93. (Canceled)

94. (Currently Amended) A process for producing a product gas having heat or fuel value comprising:

feeding a carbonaceous material to a fluidized bed, the fluidized bed containing particles suspended in a fluid medium, the fluidized bed including a top portion and a bottom portion, the bottom portion being in communication with a solids collection reservoir located below the bottom portion;

indirectly heating the fluidized bed with a pulse combustion device, a portion of the carbonaceous material fed to the fluidized bed being gasified to form a product gas stream; and

feeding a gaseous medium through the solids collection reservoir and into the bottom portion of the fluidized bed where the gaseous medium gasifies carbon particles, the gaseous medium comprising an oxygen-containing gas, ~~the gaseous medium gasifying carbon particles that have accumulated in the bottom portion of the fluidized bed~~, wherein:

the solids collection reservoir is maintained at a higher temperature than the fluidized bed.

95. (Previously Presented) A process as defined in claim 94, wherein the fluid medium in the fluidized bed comprises steam.

96. (Previously Presented) A process as defined in claim 95, wherein at least a portion of the carbonaceous material fed to the fluidized bed is steam reformed to form the product gas stream.

97. (Previously Presented) A process as defined in claim 94, wherein the fluidized bed is heated to a temperature of less than about 1150 degrees F.

98. (Previously Presented) A process as defined in claim 94, wherein the fluidized bed is heated to a temperature of less than about 1100 degrees F.

99. (Previously Presented) A process as defined in claim 94, wherein the product gas stream is fed to a filtering device for filtering solids entrained in the product gas stream, the filtered

solids being recirculated back to the fluidized bed.

100. (Previously Presented) A process as defined in claim 94, wherein the gaseous medium fed through the solids collection reservoir contains oxygen in a stoichiometric amount less than about 50%.

101. (Previously Presented) A process as defined in claim 94, wherein a portion of the carbon particles contained in the solids collection reservoir are oxidized and wherein another portion of the carbon particles contained within the solids collection reservoir are endothermically converted to a gas.

102. (Previously Presented) A process as defined in claim 94, wherein the carbonaceous material comprises a black liquor.

103. (Previously Presented) A process as defined in claim 102, wherein the particles suspended in the fluidized bed comprise sodium carbonate.

104. (Canceled)

105. (Previously Presented) A process as defined in claim 94, wherein the particles suspended in the fluidized bed comprise sodium carbonate and the fluidizing medium comprises steam, the carbonaceous material being fed to the fluidized bed comprising black liquor, a majority of the black liquor being steam reformed in the fluidized bed, and wherein a portion of the carbon particles that have accumulated in the bottom portion of the fluidized bed are oxidized, while another portion of the carbon particles are steam reformed.

106. (Currently Amended) A process for producing a product gas having heat or fuel value comprising:

feeding a carbonaceous material to a fluidized bed, the fluidized bed containing particles suspended in a fluid medium, the fluidized bed including a top portion and a bottom portion, the

bottom portion being in communication with a solids collection reservoir located below the bottom portion; ~~and~~

indirectly heating the fluidized bed with a pulse combustion device, a portion of the carbonaceous material fed to the fluidized bed being gasified to form a product gas stream; and

feeding a gaseous medium through the solids collection reservoir and into the bottom portion of the fluidized bed, wherein:

the particles suspended in the fluidized bed comprise sodium carbonate;
the fluid medium comprises steam and an oxygen-containing gas;
the carbonaceous material being fed to the fluidized bed comprises black liquor, a majority of the black liquor being steam reformed in the fluidized bed, and
a first portion of the carbon particles that have accumulated in the bottom portion of the fluidized bed are oxidized, and a second portion of the carbon particles are steam reformed.

107. (Previously Presented) A process as defined in claim 106, wherein the fluidized bed is heated to a temperature of less than about 1150 degrees F.

108. (Previously Presented) A process as defined in claim 106, wherein the fluidized bed is heated to a temperature of less than about 1100 degrees F.

109. (Previously Presented) A process as defined in claim 106, wherein the product gas stream is fed to a filtering device for filtering solids entrained in the product gas stream, the filtered solids being recirculated back to the fluidized bed.

110. (Previously Presented) A process as defined in claim 106, wherein the gaseous medium fed through the solids collection reservoir contains oxygen in a stoichiometric amount less than about 50%.

111. (Previously Presented) A process as defined in claim 106, wherein a portion of the carbon particles contained in the solids collection reservoir are oxidized and wherein another portion of

the carbon particles contained within the solids collection reservoir are endothermically converted to a gas.

112. (Previously Presented) A process as defined in claim 106, wherein the solids collection reservoir is maintained at a higher temperature than the fluidized bed.

113. (Canceled)

114. (Previously Presented) A process as defined in claim 19, wherein the extracted solids and oxygen-containing gas are separately introduced to the second fluidized bed.